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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,815	06/15/2001	Thomas N. Jackson	823.0098USU	7917

7590 07/29/2002

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EXAMINER	
NGUYEN, TRUNG Q	
ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 07/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,815	JACKSON, THOMAS N.	
	Examiner	Art Unit	
	Trung Q Nguyen	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "***The disclosure defined by this invention***," "The disclosure describes," etc.

The abstract is objected to because it uses language, which can be implied (see above).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindsay et al. (U.S. 5,495,109).

As to claim 1, Lindsay et al. disclose in Figures 1 and 5 a method for measuring an electrical characteristic on a molecular scale comprising probing a molecular layer 22 of Fig. 1 or 26 of Fig. 5 (see column 5, lines 63-64 and column 6, lines 20-25) using atomic force microscopy (column 1, lines 18-20) having a cantilever 22 of Fig. 5 including a large contact area probe tip 23 of Fig. 5 by controlling the force applied to probe tip (column 5, lines 34-41); detecting (via detector 42 and electrometer 34) in response to probing and electrical characteristic of molecular layer (column 5 line 63 to column 6, line 6).

As to claims 2 and 9, Lindsay et al. disclose the contact area probe tip comprises a large radius sphere affixed to the cantilever (column 7, lines 44-52).

As to claims 3 and 12 , Lindsay et al. disclose the step of probing includes varying the force applied to probe tip 22 or cantilever 22 (column 6, lines 2-6).

As to claims 4 and 13, Lindsay et al. disclose in Figure 3 electrical characteristic is selected from current and voltage (column 2, lines 12-31).

As to claim 5, Lindsay et al. disclose in Figure 5 the step of detecting (via detector 42 and electrometer 34) includes coupling molecular layer (top surface of substrate 26), cantilever 22, and electro meter 34 to each other in a circuit (see Fig. 5).

As to claims 6 and 14, Lindsay et al. disclose the molecular layer is at least one selected from the group consisting of monolayer 26 of Fig. 5 (see column 5, lines 63-64 and column 6, lines 20-25).

As to claim 7, Lindsay et al. disclose molecular layer is assembled by selected from ion beam sputtering (column 5, lines 29-34).

As to claim 8, Lindsay et al. disclose in Figures 1 and 5 a system for measuring an electrical characteristic on a molecular scale comprising probing a molecular layer 22 of Fig. 1 or 26 of Fig. 5 (see column 5, lines 63-64 and column 6, lines 20-25), subject to having electrical characteristic thereof measured (via electrometer 34 of Fig. 5) using an atomic force microscopy (column 1, lines 18-20) having a cantilever 22 of Fig. 5 including a large contact area probe tip 23 of Fig. 5; a meter 34 couple to molecular layer 26 (Fig. 5) and cantilever 22 (see Fig. 5) for detecting (via detector 42 and electrometer 34) in response to probing and electrical characteristic of molecular layer (column 5 line 63 to column 6, line 6).

As to claim 10, Lindsay et al. disclose in Figure 5 cantilever 22 and large contact area probe tip 23 comprise at least an electrically conductive coating, the cantilever and large contact area probe tip are electrically conductive (column 1, lines 30-35).

As to claim 11, Lindsay et al. disclose molecular layer 26 is probed by controlling the force applied to probe tip (column 5, lines 34-41).

As to claim 15, Lindsay et al. disclose the molecular layer is assembled by Langmuir-Blodgett Deposition (column 8, lines 18-25).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. As already mentioned, there are a number of prior art references dealing with the use of molecular probe station; only a representative sample is cited herein.

Bloom et al. (U.S.5,381,101) disclose a system and method of measuring high-speed electrical waveforms using force microscopy and offset sampling frequencies.

Kley (U.S. 5,756,997) discloses a scanning probe/optical microscope with modular objective/probe and drive/detector units.

Quate et al. (U.S. 5,319,977) disclose a near field acoustic ultrasonic microscope system and method.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Nguyen whose telephone number is 703-305-4925. The examiner can normally be reached on Monday through Friday, 8:30AM – 5:00PM. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5841. If attempts to reach the examiner by

telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached at 703- 308-1680.

TN
July 23, 2002

7/25/02

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800